

Application No.: 10/026,171
Response dated: July 23, 2008
Reply to Office Action of: May 12, 2008

REMARKS

Reconsideration of the application is respectfully requested.

Claims 1, 3, 5-10, 14-22, and 24-38 are pending. Claims 2, 4, 11, 12, 13, and 23 were previously cancelled.

Rejections under 35 USC § 103

Claims 1, 3, 5, 6-10, 14, 15, 18-22, and 24-38 were rejected under 35 USC § 103(a) as being unpatentable over WO 96/35729 (Razavi I) for the reasons stated on pages 2-4 of the Action. In particular, the Action states that Table 4 of Razavi I teaches combining the metallocene and the activator at a temperature up to 90°C and for times up to 120 minutes. Applicants respectfully disagree.

Applicants recite a method for preparing a supported catalyst composition system comprising *inter-alia* step a) of first heating a composition comprising a metallocene catalyst compound and an activator to a temperature of from 75°C to 125°C for about 30 minutes to about 3 hours. Step a) is then followed by step b), which recites combining the resulting composition of step (a) with a carrier, said carrier heated to 30-75°C; wherein the composition of step (a) is at a temperature of from 75°C to 125°C and said carrier is at a temperature of 30-75°C when the composition of step (a) and the carrier are combined. This is in contrast to Razavi I, which discloses at Page 17 in relation to Table 4:

"[t]hese examples (Table 4) show the surprising and very important role of the temperature of the reaction between the mixture metallocene/MAO and the support on the catalyst efficiency in the polymerization of ethylene. In Examples 15 to 18 (prior art) the reaction has been conducted at a temperature from 20 to 70°C during time periods from 2 hours to about 48 hours, thus within the range of the temperatures cited in the examples of US patent N° 5,240,894 and in Examples 19 and 20 (invention) at 90°C, a temperature according to the present invention. As shown the activity of the catalyst of Example 19 is substantially the same as for Examples 15 to 18 but for a time period twice as short whereas the activity of the catalyst of Example 19 is substantially higher. Further in the examples of the prior art important fouling is formed in the reactor."

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As such, Razavi I fails to disclose or suggest Applicants' recited step a) of first heating a composition comprising a metallocene catalyst compound and an activator to a temperature of from 75°C to 125°C for about 30 minutes to about 3 hours which is then followed by the recited step b) wherein the composition of step (a) is combined with the carrier; instead, Razavi I is directed to heating the combination (silica/toluene) + (metallocene/MAO) at 90°C for 120 minutes.

Furthermore, Razavi I merely discloses mixing of the support with the catalyst and then heating the mixture to a particular temperature for a period of time. Razavi I fails to disclose or suggest Applicants' recited step of heating the support to a particular temperature prior to combination of the support with the catalyst/activator combination. As Applicants' examples teach, this combination of recited steps (a) and (b) result in an unexpected improvement in activity and fouling index.

Razavi I thus fails to disclose or suggest all of Applicants' recited limitations. As such, Razavi I cannot render the instant claims obvious. Removal of the rejection is respectfully requested.

Claims 16 and 17 were rejected under 35 USC § 103(a) as being unpatentable over Razavi I, and further in view of U.S. Patent No. 5,367,037 to Lee *et al.* (Lee) for the reasons stated on page 4 of the Action. Applicants respectfully disagree.

Claims 16 and 17 further limit the recited method to require the free flowing composition to be reslurried in a liquid (Claim 16), and then wherein the liquid is mineral oil (Claim 17.) However, Lee fails to cure the defects in Razavi I to disclose or suggest Applicants' recited step (a) followed by step (b). As such, Razavi I in view of Lee fails to disclose or suggest all of Applicants' recited limitations. Removal of the rejection is respectfully requested.

Claims 1, 3, 5-10, 14-22 and 24-38 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,420,501 to Uwai (Uwai) for the reasons stated on pages 4-5 of the Action. Applicants respectfully disagree.

Uwai is alleged to disclose in Table 1 that the metallocenes and activator can be combined at temperatures up to 100°C and for times up to 60 minutes. The Action further alleges that Applicants' step (b) is suggested although Uwai discloses a temperature of 100°C. The Comparative Examples in Uwai, CEx-4 and CEx-5 of Table 1, which were

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heated to 100°C for 60 minutes disclose activities of 83 and 750 respectively. Uwai directly which compares these examples with inventive Example 5 of Uwai, having an activity of 3000. Accordingly, the Uwai fails to suggest Applicants recited step which is demonstrated to improve the activity of the catalyst, but instead teaches that heating of the catalyst with the support results in a drastic reduction in activity of over 2000 units, effectively destroying the activity of the catalyst composition. In addition, similar to Razavi I, Uwai fails to disclose or suggest combining the heated catalyst/activator mixture with a pre-heated support, but instead merely discloses heating of the combined materials. As such, Uwai fails to disclose or suggest all of Applicants' recited limitations and in fact, actually teaches away from the presently claimed invention.

The Action also suggests that the addition of one component that is up to 125C to another component that is up to 75C, will result in a new composition with a temperature higher than 75C, assuming equal heat capacities and equal volume solutions the resultant temperature would actually be 100C. Applicants respectfully note that while this may be true under certain conditions, this final temperature does not reflect Applicants' recited step (b) of combining the two materials which are each within particular temperatures ranges. Applicants do not recite a final temperature in step (b), but require the two components which are mixed to be within the recited temperature ranges, which, in combination with recited Step (a), unexpectedly results in an improvement over the prior art as was demonstrated in the previously submitted Supplemental Declaration. Accordingly, the suggestion of the Action is ancillary to the presently claimed invention.

Claims 16 and 17 were rejected under 35 USC § 103(a) as being unpatentable over Uwai, and further in view of Lee for the reasons stated on page 6 of the Action. Applicants respectfully disagree.

As discussed previously, Lee fails to disclose or suggest Applicants' recited step (a) followed by step (b). Lee thus fails to cure the defects in Uwai. As such, Uwai in view of Lee fails to disclose or suggest all of Applicants' recited limitations.

Accordingly, Applicants do not recite a mere variation of temperature on a known process step in which the temperature is known to be critical, but in fact, recite an entirely separate combination of steps which Razavi I and/or Uwai each fail to disclose or suggest.

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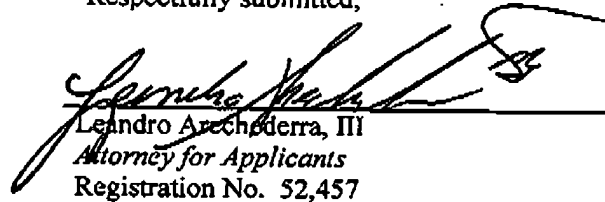
As such, none of the cited prior art provides any disclosure or suggestion which even remotely recognizes or suggests Applicants' discovery that the deliberate heating of the catalyst and the activator prior to contacting with the support is a critical variable which achieves a recognized result. The references merely provide for combining the two components and heating at a final temperature. Accordingly, Applicants' presently claimed invention cannot be considered an optimization of a result effective variable since no such variable existed prior to Applicants' invention. Furthermore, in the inventive Examples described in the Affidavits submitted, Applicants have shown vast improvement that are unexpected in view of the cited prior art.

Thus, Applicants respectfully request that all rejections be withdrawn and solicit a prompt notice of allowability. In the alternative, Applicants invite the Office to telephone the undersigned attorney if there are any other issues outstanding which have not been presented to the Office's satisfaction.

Respectfully submitted,

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Date


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